Music


Jim Dutton/Capcom: Copy field in site, Atlantis.

Narrator: NASA's Kennedy Space Center in Florida and Edwards Air Force Base in California are well-known landing sites for the space shuttle fleet.

But the agency has a roster of runways around the globe that could host a shuttle in an emergency.

Long before a shuttle crew spots its intended landing target, mission controllers are closely monitoring the spacecraft, the crew and the weather at several landing sites before issuing a "go" for deorbit burn.

Meanwhile, support crews are ready and eager to usher the astronauts in on the last leg of their journey, wherever that may be.

The preferred finish line is the shuttle's home base at Kennedy a 15,000-foot-long runway that's about as wide as the length of a football field.
Richard Merritt/Landing Support Manager: It's just awesome to see this big heavy, bulky thing coming out of the sky.

And almost coming straight down like a brick.

I always say it's like a brick and it just glides down and lands.

Construction of Kennedy's Shuttle Landing Facility wrapped up in 1976, but the site didn't host any shuttles until 1984.

From the first shuttle mission in 1981, the primary landing site was Edwards Air Force Base, adjacent to NASA's Dryden Flight Research Center in California.

Richard Merritt, a landing support manager with United Space Alliance, says Florida's marshy terrain is the main reason it took nearly a decade to move from one coast to another.

Richard Merritt/Landing Support Manager: We were still a research and development type of aircraft/spacecraft.
They just weren't comfortable with the target here.

If you look from above and looking on the runway, each side has a lot of water.

So, if you didn't make the runway here, you'd be talking to the alligators.

Out in the desert, we landed on the dry lakebed.

It's just lots of area, lots of room if you had some kind of problem

and you didn't quite make the runway.

So, I believe that's the difference. Much better target.

Narrator: Columbia was the first shuttle to complete a mission when it touched down

on that dry, expansive target April 14, 1981, ending STS-1.


John Young/STS-1 Commander: Do I have to take it up to the hangar, Joe?

STS-1 Capcom: We're going to dust it off first.

Narrator: As NASA's back-up site today, mainly because of Florida's

often-finicky weather, Edwards has welcomed home more than 50 shuttle crews.
The main difference in landing a shuttle at Kennedy and Edwards is all in the processing.

Dean Schaaf/NASA Ground Operations Manager: The biggest difference here, we land and say three or four hours later, we're towing the vehicle into the orbiter processing facility, into a hangar.

Out there, we tow it up to the mate-demate device, the MDD, and we have site-access platforms that lower down and around the orbiter and we do all the processing.

It takes us seven days from landing to being ready to ferry after we attach the tailcone and back out and everything. It takes us seven, seven and a half days to do that.

So, it's all done out in the elements and we have had rain, and hail and lightning.

You know, all of those elements to work around out there at Dryden.

Narrator: Kennedy and Edwards aren't the only options for the shuttle.

There's also White Sands Space Harbor in New Mexico.

It's where astronauts practice landing their Shuttle Training Aircraft because of its close proximity to NASA's Johnson Space Center in Houston.
It's only been called upon one time to host a real shuttle landing, though:


Merritt says it was tough to process the shuttle in the gypsum-filled desert and there's a reason it's called "white sands."

Richard Merritt/Landing Support Manager: Parts of it looks like a moon with dunes.

It's just pure, pure white, part of the desert is.

And I guess some of its got growth and stuff, but when the wind blows it just kind of shifts it around. So it's a real fine powder, almost not quite like flour,

but it's real fine and gets into everything.

Narrator: After that first-and-only landing,

NASA chose to relocate the processing turnaround area to minimize the wind.

The end of a mission is not the only time NASA focuses on a landing site.

If a shuttle were to encounter a problem during launch or entry,

it could return to a transoceanic abort landing site, also called a TAL site.
There are two in Spain and one in southern France.

Other countries that once hosted TAL sites include the Republic of the Gambia, Senegal and Morocco.

Dean Schaaf/NASA Ground Operations Manager: This reminds me of the site we used to have in Ben Guerir, Morocco.

It was a landing strip out in the middle of the desert with a tower and very little else.

And we built a building there and we used that for missions all the way up until the early 2000s when we closed that site and opened up Istres, France.

Narrator: Glen Lockwood flies out to a TAL site before every launch and says even if it's a perfect day in Florida, bad weather elsewhere could be a showstopper.

Glen Lockwood/NASA Ground Operations Manager: Our No. 1 concern here is safety.
One site needs to be ready to support an orbiter landing for every launch.

That's why we augment three TAL sites, because weather sometimes eliminates one site, perhaps two sites, sometimes all three TAL sites.

If all three TAL sites are down because of weather, then we cannot launch.

In the Space Shuttle Program's nearly 30-year-history, a TAL site has never been needed, but that doesn't change the intensity of preparations for the team.

Eileen Collins/STS-93 Commander: Houston, Columbia. We're in the roll,

we've got a fuel cell (inaudible), level one.

STS-93 Capcom: Roger roll, Columbia. We're looking at it.

Glen Lockwood/NASA Ground Operations Manager: Back in '99,

it was Eileen Collins' mission.

She was commander at that time and we had some technical problem

with the vehicle upon launch.
And so we were concerned that we might be needed, but we weren't, thankfully.

We've never been used. And of course everybody when we go over there, we are basically programmed to be ready, but we are all hoping that we will not be needed.

As the Space Shuttle Program comes to an end, landing support team members are looking forward to getting their hands on each space shuttle for the last time.

Richard Merritt, Landing Support Manager: It's excitement and anxiousness, you know, and some sadness in there because they know it's wrapping up.

And each one, as we get closer to the end means a lot to everybody.